AOML Keynotes
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AOML to March in Parade

AOML will celebrate Independence Day next month by participating in the annual Key Biscayne Fourth of July parade. Employees and their families are invited to join in the fun.

Participants are asked to meet in the AOML parking lot at 9:00 a.m. on Saturday morning, July 4th and wear NOAA t-shirts or other articles of clothing that identify them as NOAA/AOML employees. AOML's stake-truck will be loaded with oceanic and atmospheric research gear and decorated with signs and flags. At 9:15 a.m., the stake-truck will leave the AOML grounds and transport parade participants to the parade staging area on Key Biscayne.

The Key Biscayne Fourth of July parade will begin at 10:30 a.m. and cover an approximate one-mile long route along Crandon Boulevard. A map of the parade route will be posted outside of Alejandra Lorenzo's office (office number 338/1). AOML parade participants will have the option of riding on the stake-truck or marching alongside the truck and distributing informational brochures about AOML.

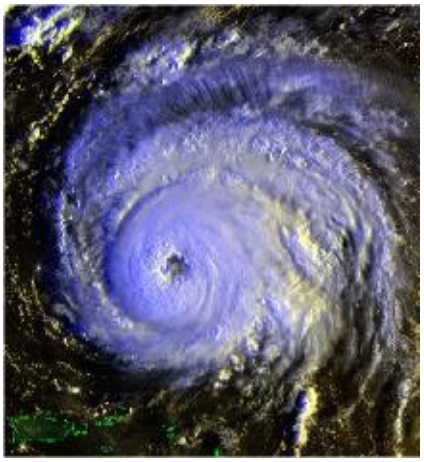
Come join the fun and lend your support for AOML's participation in the Key Biscayne Fourth of July parade.

On July 1, 1998, Miami-Dade County will begin mandatory ten-digit dialing of all local telephone numbers (area code plus seven-digit number).

The 1998 Hurricane Season

Hugh Willoughby

The official Atlantic hurricane season started on Monday, June 1, 1998. The sages who try to prognosticate the course of the new season are calling for nearly normal activity. If the big 1997–1998 El Niño drags on, these forecasts may err on the high side. Still, even a slow season can spin up interesting storms, in terms of both opportunities for meteorological research and impact on coastal real estate. Remember another El Niño year, 1992.



For Hurricane Research Division scientists, the "real" hurricane season, when they can surf the convective updrafts and downdrafts into the eye aboard NOAA's research airplanes, starts at the end of July. This year they will use the well–tested WP–3Ds, around for more than 20 years, and the Gulfstream-IV, new to hurricane work last season. HRD plans to begin the season by flying to Barbados at the beginning of August for their annual Tropical Cyclogenesis Experiment. TCGX will study any tropical wave that is passing into the eastern Caribbean at the time, whether it becomes a hurricane or not, and shake down equipment and people for later operations. The two highest priorities in 1998 are synoptic surveillance, observation of the flow around hurricanes to improve track forecasts, and Hurricanes at Landfall (HAL), observation of the low–level wind structure of hurricanes as they pass onshore.

Synoptic surveillance uses dropsondes that report atmospheric structure as they fall on parachutes from flight level to the sea. Years of dropping the old Omega dropwindsondes from the WP–3Ds showed that additional data can reduce track forecast errors by 16–30%. This result motivated acquisition of the Gulfstream-IV, as well as development of a new generation of dropsondes that calculate winds from the Global Positioning System (GPS), rather than from the now obsolete Omega system. Continuation of the research in 1998 and beyond will demonstrate an operational ability to make much more accurate forecasts of hurricane motion. Observations in some locations contribute more to better forecasts than others. Thus, part of the effort will focus

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1998 Atlantic Basin Storms

Alex	Bonnie	Charley	Danielle	Earl	Frances	Georges
Hermine	Ivan	Jeanne	Karl	Lisa	Mitch	Nicole
Otto	Paula	Richard	Shary	Tomas	Virginie	Walter

Tropical Systems

Tropical disturbance, tropical wave: Unorganized mass of thunderstorms, very little, if any, organized wind circulation.

Tropical depression: Evidence of closed wind circulation around a center with sustained winds from 23-39 mph.

Tropical storm: Maximum sustained winds from 40-74 mph. The storm is named once it reaches tropical storm strength.

Hurricane: Maximum sustained winds exceed 74 mph.

Safir-Simpson Hurricane Intensity Scale

Category	*Winds*	*Surge*
1	74-95 mph	4-5 ft
2	96-110 mph	6-8 ft
3	111-130 mph	9-12 ft
4	131-155 mph	13-18 ft
5	155 mph+	18 ft

Alerts

Hurricane watch: Hurricane force winds possible within 36 hours.

Things to do: Check food and medical supplies, batteries, and emergency tools; monitor latest advisories; keep car fueled; withdraw emergency funds; secure outdoor areas; plan escape route.

Hurricane warning: Hurricane force winds likely within 24 hours.

Things to do: leave low-lying areas; leave mobile homes; board windows or protect with shutters or tape; keep insurance policy on hand.

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on locating the "hot spots" where dropping $500 dropsondes does the most good.

Through the magic of computer graphics, the Gulfstream-IV jet appears in the AOML parking lot.

HAL is designed to study the lowest few meters of the hurricane. For several years, HRD has provided forecasters at the National Hurricane Center (NHC) with real–time surface wind analyses to help with forecasts and warnings. GPS sondes, which can measure accurate winds to within a few meters of the sea surface, add detail and accuracy to the extrapolated flight–level and scattered surface observations used in previous seasons. HAL is one of the three foci of the U.S. Weather Research Project (USWRP). If funding through USWRP materializes, HRD, other government labs, and university colleagues will collaborate, starting in 2000, to deploy land–based sensors, including mobile Doppler radars, ashore ahead of landfalling hurricanes. Study of interaction between the storms and the sea, which provides thermal energy essential to intensification, is another key aspect of HAL. Airborne expendable bathythermographs and current meters, instrumented buoys, and passive and active mircowave airborne surface–wind sensors are the tools used to study the exchange processes and validate two–way interactive numerical models. This year NASA's DC–10 and ER–2 will fly with NOAA's airplanes as part of CAMEX3. They will use dropsondes, cloud physics sensors, and various remote sensors to study both hurricanes and tropical convection.

Hurricane intensity change is a big unsolved forecasting problem that involves lateral interaction with surrounding atmospheric flow and the storm's internal dynamics, in addition to forcing by the sea. Much of HRD's experimental program addresses these aspects. Here, again, use of the GPS sondes is an important new element added to flight–level measurements and airborne radar. Radar reflectivity provides a basis for rainfall estimation and visualization of three–dimensional flow patterns. HRD helped pioneer wind measurement in hurricanes by airborne Doppler radar. Both tail radars on the P–3s now have Doppler processors. These instruments scan in a direction perpendicular to the aircraft motion so that the airplanes can synthesize a true dual–Doppler wind field by flying on intersecting perpendicular tracks at different altitudes. Another neat trick involves flying directly toward or away from a land–based Doppler radar so that the radials from both radars cross almost perpendicularly to get dual–Doppler winds. The WP–3Ds carry instruments to measure atmospheric electrical fields—yes, they do get hit by lightning several times a season—and laser shadowgraphs that can image individual 10 m cloud droplets. Thus, the spatial scales of hurricane research spans nearly 12 orders of magnitude, from hemispheric circulation patterns (6×10^6 m) to that of single cloud droplets.

Flying into hurricanes is not nearly as horrendous as it might seem. The wind blows in a circle so that if the airplane flies with the wind blowing from left to right across your track, it will eventually reach the center. Radar also shows the eye and surrounding eyewall cloud ahead clearly. It is the transition between updrafts and downdrafts that makes the ride bumpy. The idea is to fly slowly enough to keep the transitions from being too abrupt, but fast enough not to stall the airplane and fall out of the sky like an autumn leaf. The pilot has to be willing to ride the updrafts up and the downdrafts down to stay at the right speed. A thousand–foot–a–minute updraft sounds like a lot, but the airplane is usually in it for only 10–20 seconds. This is why pilots tend to be well–coordinated extroverts who remember the flight instructor's maxim: "Maintain attitude (keep the airplane right–side up) and air speed, and altitude will take care of itself—provided you have some."

"Joe" Friday Resigns

Dr. Elbert W. Friday, Jr., "Joe" Friday, has resigned as NOAA Assistant Administrator for the Office of Oceans and Atmospheric Research (OAR). Only July 1, 1998 he joins the National Academy of Science as Director of the Board on Atmospheric Sciences and Climate (BASC).

The BASC was established in 1982 by the National Research Council to advance understanding of the earth's atmosphere and climate, to help apply this knowledge to benefit the public, and to advise the federal government on problems and programs within the Board's areas of expertise. Activities conducted under the auspices of the BASC include scientific assessments, review and guidance for major research programs, serving as a U.S. interface to international research activities, and facilitating communication among the research community, industry, and policymakers.

With his resignation, Friday leaves behind a distinguished 17-year career with NOAA. As Assistant Administrator for OAR, Friday was responsible for effecting research and development programs that supported and enhanced current and future NOAA services. Prior to this, he served as both Deputy Director and Director of the National Weather Service. During this time, he was responsible for every aspect of providing the nation with an effective weather, climate, and flood warning system, as well as providing forecasting services geared to minimize loss of life and property. Friday is also credited with successfully managing the modernization of the National Weather Service, which included the development and installation of the complete NEXRAD Doppler weather radar system. This modernization has resulted in significantly improved weather forecasts and flood warnings in the United States.

CPR/FIRST AID

Training Class Presented by the

RED CROSS

Friday, June 12, 1998
8:30 a.m. - 4:00 p.m.
First Floor Conference Room

Hearing Calls for Plain Speaking

A National Science Policy Study hearing entitled "Communicating Science and Engineering in a Sound-Bite World" was recently held in Washington, D.C. One of the major themes to emerge from discussions was the need for scientists to tailor their communication skills and learn to explain the benefits of their work in a more comprehensive manner to be understood by legislators, the media, and the general public.

House Science Committee Chairman, Rep. James Sensenbrenner (R-WI), stated at the hearing "communicating science is, I believe, critical to ensuring continued public support for science." Other House Science Committee members echoed this belief, noting that few lay people truly comprehend the technical terms associated with scientific knowledge. Sensenbrenner went on to declare, "If we are to maintain public support for our scientific enterprise, what is sorely needed today is a way to translate the grandeur of science into the language of ordinary people."

MWRC Needs Your Input

The Morale, Welfare, and Recreation Committee (MWRC) was formed to plan morale-building events for the AOML community. The Committee consists of a representative from each Division and is chaired by Alejandra Lorenzo. The list of Division representatives is as follows:

- OAD Alejandra Lorenzo
- HRD Sam Houston
- OCD Terry Nelsen
- ADP Gerald Momplaisir
- PhOD Yeun-Ho Daneshzadeh or Mayra Pazos
- OD Judy Gray or Greg Banes
- Library Linda Pikula

If you have ideas or suggestions about an event you would like the MWRC to sponsor, please contact your Division representative. Here is a list of events the MWRC will sponsor for the remaining portion of 1998:

- Fourth of July picnic
- Pot luck luncheon (date to be determined)
- Octoberween
- December holiday party

Although many months away, the MWRC is already beginning to consider plans for the December holiday party. Here are three options under consideration:

1. Pot luck luncheon held in the AOML lobby (no employee cost involved; refreshments and various food items provided; side dishes requested).
2. Catered luncheon held in the AOML lobby (employee cost involved).
3. Catered dinner party at an off-site location with DJ (employee cost involved).

Of these three options, which would you most likely attend. How much would you be willing to pay for options 2 and 3. Employee input is important and will determine the MWRC's choice of option. Contact your Division representative to discuss your choice/thoughts/opinions about AOML's December holiday party.

Need information about hurricane shutters? Copies of the National Hurricane Center's brochure "What About Shutters" is available in the first floor literature rack located in the lobby. The pamphlet includes information on an alternative way to make shutters out of plywood that will generally perform much better than the plywood shutters commonly shown in preparedness guides. These special types of shutters (used by Drs. Bob Sheets and Neil Frank, former Directors of the National Hurricane Center) performed very effectively in the eyewall winds of Hurricane Andrew.

Travel

Christopher Landsea will visit Dr. William Gray and associates at Colorado State University from May 25-June 14, 1998 to collaborate on seasonal and climate research projects and to prepare the early June seasonal Atlantic hurricane forecast.

James Franklin and **Hugh Willoughby** visited the Aircraft Operations Center in Tampa, Florida on May 21, 1998 for a test flight aboard the Gulfstream-IV Hurricane Surveillance Aircraft (N49RF). Test flight objectives included assessment of data communications and the potential for GPS dropsondes to measure sea-surface temperatures.

Kristina Katsaros, **Silvia Garzoli**, and **Robert Molinari** attended the 1998 World Ocean Circulation Experiment Conference in Halifax, Nova Scotia, Canada on May 24-29, 1998

Hugh Willoughby traveled to the Naval Postgraduate School in Monterey, California on May 29, 1998 to participate in the Ph.D. dissertation defense of CDR D.W. Titley.

Elizabeth Johns attended the TOS/IOC Meeting in Paris, France on May 31-June 7, 1998 a presented a poster about the Florida Bay.

Stanley Goldenberg attended the Caribbean Climate Outlook Forum in Kingston, Jamaica on May 21-22, 1998 and made a presentation entitled "Hurricane activity: 1998 and beyond."

Congratulations

Congratulations to Molly and John Baringer on the birth of their daughter, Anna Katherine O'Neil Baringer, born Wednesday, May 6, 1998 at 8:59 a.m. Anna Katherine weighed in at 7 pounds, 6 ounces.

AOML Bids Farewell to Members of ADP Group

Pictured (left to right): Deputy Director, Judy Gray, Randy Davis, Anshu Bhandari, and ADP Manager, Gerald Momplaisir.

AOML said their goodbyes to Randy Davis and Anshu Bhandari, both members of the Officer of the Director's ADP group, on Friday, May 22, 1998. Randy, an eight-year veteran at AOML, resigned to become southeast regional manager for the Technology Training Consortium. Anshu, a recent Florida International University computer science graduate, resigned to accept a programming position with Lucent Technologies in North Carolina. Best wishes and best of luck to Randy and Anshu for their continued success.

UPCOMING INFORMAL RESEARCH REPORTS*

Date	Division	Speaker	Title of Report
June 9, 1998	OD	Dr. David R. Palmer	Fisheries acoustics: An exordium.
June 11, 1998	OCD	Dr. Thomas P. Carsey	NO and NO_2 during ACE.
June 16, 1998	HRD	Mr. Peter P. Dodge	Windfields in Hurricane Danny (1997) from multiple Doppler radars.
June 23, 1998	PhOD	Mr. Mark H. Bushnell	New developments in drifting buoys and satellite data transmission services.
June 25, 1998	HRD	Mr. John Kaplan	Climatological and synoptic characteristics of rapidly intensifying tropical cyclones in the North Atlantic basin.
June 30, 1998	OCD	Dr. Peter B. Ortner	Monsoonal regulation of Arabian Sea secondary production processes.

*All reports begin at 3:00 p.m. in the first-floor conference room.

Walking Group Formed

Ginger Garte has organized a lunch-time walking group at AOML that will meet at 11:30 a.m. on Tuesday and Thursday outside by the basketball court. Contact Ginger for more information at 305-361-4430 (garte@aoml.noaa.gov).

NOAA DIVERSITY COUNCIL

PRESENTS A ONE-DAY SYMPOSIUM

"Managing Diversity"

WEDNESDAY
JUNE 10, 1998

8:30 AM - 4:30 PM
(REGISTRATION BEGINS AT 8:15 AM)

RSMAS AUDITORIUM

MANAGERS AND SUPERVISORS SHOULD ATTEND; EMPLOYEES ARE ENCOURAGED TO ATTEND

Public Transit Update

Copies of the newest schedules for the B-Bus and Metrorail are located in the first floor literature rack in the lobby. The new Metrorail schedules now contain complete lists of all times at all of the stops.

Important notice: The main downtown stop for the B-Bus has been moved (until further notice) from S.W. 1st Avenue and S.W. 1st Street to the east side (on 1st Avenue) of the main downtown bus terminal. There is also a temporary detour from Crandon Boulevard to Harbor Drive. A map of the Harbor Drive detour is posted in the fourth floor luncheon area. Call the Miami-Dade Transit Authority at 305-654-6586 for further information on routing changes.

Fourth of July Picnic

Saturday, July 4, 1998

RSMAS grounds

Starts between 12:00 - 1:00 p.m.
(after Key Biscayne Fourth of July parade)

Free hot dogs, beer, and soda!

Pot luck/covered-dish items requested (sign-up sheets in main elevator)

Contact Alejandra Lorenzo to let her know how many will be attending in your party (305-361-4404 or lorenzo@aoml.noaa.gov)

(sponsored by the Morale, Welfare, and Recreation Committee)

AOML Team Participates in Office Depot's Corporate Run

Pictured (left to right): Front row: Claire Black, Peter Black, Kristina Katsaros, Luis Amat, Eric Ulhorn, Peter Dodge. Back row: Paul Willis, Frank Marks, Hugh Willoughby, Mark Boland, Judy Gray, Alejandra Lorenzo, Steve Feuer, Howard Friedman.

On Thursday, May 7, 1998 a team from AOML participated in Office Depot's Corporate Run in downtown Miami to raise monies for local charities. AOML's team, 14 strong, was augmented by the addition of Mark Boland, a former OAD employee visiting the Miami area, and Claire Black, Peter Black's wife. AOML has participated in the Corporate Run for the past eight years.

Keynotes is published monthly by the Atlantic Oceanographic and Meteorological Laboratory. Contributions are welcome and should be submitted prior to the last week of each month to ensure inclusion in the following month's edition. Please address all correspondence to Ms. Gail Derr, Office of the Director, 4301 Rickenbacker Causeway, Miami, FL 33149. Contributions may also be submitted by fax at (305) 361-4442 or by email (derr@aoml.noaa.gov). If you have comments, questions, or suggestions, feel free to send them along as well; we're always interested in hearing from you.

Editor - Kristina Katsaros
Publishing Editor - Gail Derr

The deadline for submitting material for the March issue of *Keynotes* is Friday, June 19, 1998.